

We claim:

1. An automated system for slicing meat and placing the sliced meat in stacks into a package therefor, the system comprising:

5 a slicing station including a chub slicer for slicing a chub of predetermined size from a log of meat fed to the slicer, the predetermined chub size substantially corresponding to a predetermined amount of meat to be placed in a compartment of the package;

10 a chub harping station including spaced harping blades and a chub advancement mechanism, the harping station receiving chubs from the slicing station with the chubs pushed past the blades with a predetermined amount of force via the chub advancement mechanism to form a predetermined number of stacked meat slices from the chub; and

15 a stack insertion station for receiving the stacked meat slices from the harping station and including a stack guide that substantially maintains control over the stack of meat slices for automated transfer thereof into the package compartment.

2. The system of claim 1 wherein the stack insertion station is adjacent to the chub harping station so that the advancement mechanism of the harping station feeds the stacked meat slices to the stack insertion station, and

20 a conveyor between the slicing station and the chub harping station that transports the chubs from the slicing station to the harping station.

3. The system of claim 1 wherein the chub slicer includes a rotary blade having opposite sides with substantially parallel planar cutting surface portions, and a slotted log support to allow the blade to pass the log support for slicing through the log fully supported thereon on either side of the blade so that sliced end surfaces of the chubs are substantially planar for generating well formed slices from the chubs at the harping station.

4. The system of claim 1 wherein the harping blades have an elongate flat configuration with a cutting edge formed along the length thereof, and the harping station includes a drive and blade mount assembly that cooperate to allow the blades to undergo reciprocating movement in the lengthwise direction of the blades transverse to the pushing of the chubs so that the cutting edges slice through the chub with the predetermined force amount of the advancement mechanism minimized to avoid deflecting the blades with the pushed chub.

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10 5. The system of claim 4 wherein the drive is an eccentric drive, and a pivotal actuator between the eccentric drive and blade mount assembly that transfers output of the eccentric drive to reciprocating motion of the blade mount.

15 6. The system of claim 4 wherein the chubs have substantially flat parallel ends and a cylindrical outer surface extending between the ends, a pusher of the advancement mechanism, and the engagement portion is an arcuate chub engagement portion of the pusher sized to engage the chub for the full distance along of the outer surface between the ends of the chub and having slots to allow the blades to pass therethrough as engagement portion travels past the blades, and

20 a chub centering mechanism including opposing members each one of which presses substantially equally against an opposite end of the chub for forming end slices of substantially even thickness in a stack of meat slices despite variations in chub size.

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7. The system of claim 1 wherein the stack insertion station includes a package delivery conveyor that aligns packages with the stacks of meat slices for receipt in a compartment thereof, and the stack guide includes an actuator which causes the guide to push on an end of the stack with the package in alignment for shifting the meat slices into the package compartment while maintaining the slices in the stack thereof.

8. The system of claim 7 wherein the stack is vertically oriented at the stack insertion station, the stack guide includes a weight that engages against a topmost slice in the stack for controllably shifting the stack downwardly into the package compartment, and

10 a stack gating mechanism at the insertion station that has a support position for supporting the vertical stack, and a release position to allow the stack with the weight thereagainst to fall into the compartment of the package aligned therebelow.

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9. An automated processing method for a meat product, the method comprising:

20 cutting a section of the meat product from a larger section thereof, the section corresponding to a predetermined amount of the meat product to be placed in a package;

25 slicing the section into a predetermined number of slices that are formed simultaneously in a single slicing operation so that a stack of the slices is formed;

shifting the stack of slices automatically into the aligned package to avoid manual handling of the stack.

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10. The method of claim 9 wherein the section cutting includes supporting the larger section on either side of a cutting area and passing substantially parallel planar opposite surface portions of a cutting blade through the larger section with the cutting area providing clearance for the blade to pass therethrough for forming substantially planar end surfaces of the cut meat product section.

10 11. The method of claim 9 wherein the section is sliced by holding opposite cut end surfaces of the meat product section and pushing the cut section through a set of harping blades with the center of the section aligned with the center of blade set to generate substantial equal thickness end slices in a stack.

15 12. The method of claim 11 wherein the section slicing includes reciprocating the harping blades in a direction transverse to the pushed direction of the cut section.

20 13. The method of claim 12 wherein the harping blades are reciprocated by shifting a first predetermined number of the blades in one direction and a second predetermined number of the blades in an opposite direction and then reversing said blade shifting to generate alternate reciprocating slicing movements of the first and second predetermined numbers of blades.

25 14. The method of claim 9 wherein the stack of slices is shifted by engaging one end of the stack and directing the stack into the package with an end of the stack opposite the one end being the leading end to enter the package.

15. The method of claim 14 wherein the section is sliced by orienting the section so that a vertical stack of slices is formed with the opposite ends being vertically spaced from each other, the package is aligned by delivering packages so that an opening therein is aligned below the leading 5 end of the stack, and the stack of slices is shifted by removing a bottom support of the stack with the package opening in aligned position therebelow to allow the stack to undergo a controlled free fall into the package via the engaged trailing end of the stack.

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